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AUTHOR Ngwenyama, Ojelanki K.
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ABSTRACT

This keynote address examines the social relations of information technology in the future. Examples of the recent history of technology related to transportation, printing, and nuclear energy are presented. Some troubling examples of the social relations of new information technologies that are emerging on a global scale are then discussed, including inequality in access to the global telephone system and computers. It is argued that modern telephone and transportation systems are contributing to the demise of urban life and precipitating the emergence of exploitative international labor practices. Examples of the implications of teleworking and electronic marketing are offered. The importance of reaching out to the technologically illiterate and educating them about new technologies is emphasized. (MES)

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PEOPLE IN A TECHNOLOGY DRIVEN FUTURE: On The Social Relations of New Information Technologies

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TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

Ojelanki K. Ngwenyama

Keynote Address
To the 1998 IATUL Conference on:
Millenial Megatrends: Gateways to the 21st Century
University of Pretoria
June 1, 1998, 10:30

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"It was the best of times, it was the worst of times,"
Charles Dickens.

Thank you Mr. Chairman, for your kind introduction. Mr. Vice Chancellor, Distinguished guests, Members of the faculty.

First I want to confess that I did not select the title for this lecture. The title was selected and I was informed about it by fax some ten days ago as I was preparing to travel to Denmark to work with some colleagues at the Computer Science Department, Aalborg University.

I must say, however, that whoever selected it did a brilliant job. It has engaged me ever since I got the fax.

Distinguished audience I would like to suggest to you that the title: People in a technology driven future raises a fundamental question; what will be the social relations of information technology in future years. A question that suggests no easy answers. So fundamental is this question that I decided to make it the subtext of my lecture.

Distinguished audience, questions of the future have baffled humans for millennia. As a scientist I have no crystal balls or physic media through which I can discern or divine the future. Until now, the basic strategy that scientists have used to look into future has been informed speculation. In fact all scientific theories are speculations until corroborated or rejected.

But on what do we base our speculations? The answer is historic fact.

With this basic principle of scientific theorizing in mind I would like you to follow me as I try to speculate about people in a technology driven future. As I said earlier, our title raises the fundamental question: What are the social relations of information technology likely to be in the future.

Before we enter this discussion I would like to declare my philosophical position. I am a critical theorist who does not separate theory from practice. My primary interest as a computer and information scientist is in improving the human condition. I am a warrior for social change. This is vantage point from which I engage the world and my profession.

I submit to you my central thesis in a Dickensian phrase:

A technology driven future ...
may be the best of times, or the worst of times.

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I repeat for emphasis:

It may be the best of times, it may be the worst of times.

In order to build a case for my central thesis I want to briefly take you through three examples of the recent history of technology.

Let us start with start with the technology of transportation. Particularly the large ocean going vessels, those developed during the fourteenth century, the kind the Portuguese were known for.

These vessels revolutionized transportation. They reduced the perception of distance and the size of the world. They brought great wealth and power to Western European nations and misery to the peoples of the so-called 'new world' and 'dark continent'. And most importantly they set in motion social relations which has resulted into an exploitative world system of richer and poorer nations that we still experience today.

While on the one hand many benefited from the coming of this new technology many millions have suffered. The same ships that moved goods and supplies for international trade and commerce, moved people to colonize and armies to subdue parts of the world. And to make the point of goods clearer, some people were moved as goods for commerce.

Today there is no part of the world that remains untouched by the dualistic legacy of those fourteenth century sailing ships. Indeed much of the difficulties that South Africa faces today have been set in motion by those very sailing ships.

But let us must move on from the ships. A second and important technology that came upon the scene in this period is the printing press. When Gutenberg unleashed the printing press nearly 99% of the people of Europe were illiterate. Reading and writing were the purview of the Catholic Church elite, royal families and a few government administrators. Even though the coming of the printing press did not immediately improve literacy it spawned an information revolution and gave rise to that special class of information workers known today as the 'news media.'

Handbills of printed pictures informed rural peoples about the happenings in the towns and brought people closer together. Later, the printing and distribution of religious literature lead to the various reformations by Martin Luther and others, and the beginning of the decline of Catholic Church's preeminent position in social affairs. Within few hundred years Europe was almost completely transformed.

But there is also a darker side of this printing technology as well, that is, propaganda and disinformation. The strategy of using printed material to thwart the will the people started almost the same time as the reformation. While Martin Luther and others were fighting to free people from the iron grip of the church elite, they fought back with disinformation and propaganda.

The war was for control over the minds of the masses and the maintenance of the status quo. While print technology has given us enormous blessings of literacy, cheap education (the distance university, UNISA, University of London), easy access to all forms of knowledge, handbills that help us fight disease in remote regions, it has also given us hate literature, propaganda and disinformation.

A third technology of importance here is nuclear energy. Here we see the same pattern of the legacy of good and evil. In this century we were able to make significant advances in the production of cheap nuclear energy. We started on this road with a blast. Bombing Hiroshima and Nagasaki killing tens of thousands and racing foolishly into oblivion in the ensuing East-West arms race. And as we sit here today there is a chance that another nuclear arms race might emerge in Asia.

Distinguished audience, as you listen to me, you may be thinking what do all these examples have to do with people in a technology driven future? From these three brief examples it is clear that the technologies were not the problem. It was who controlled the technologies and, how and for what

purposes they were used. In other words the social relations of the development and use of the technologies.

To restate our question: What will be the social relations of information technology in the future? Then simple answer is; it depends on who cultivates and controls the technology infrastructure of the future. This I think is the essential lesson of history. With these historical facts as the backdrop, let us now look at some troubling examples of the social relations new information technologies that is emerging global scale.

Let us start with the international communication infrastructure, the telephone. The global telephone system has facilitated communication between individuals, businesses and non-profit organizations. Like the printing press it's predecessor, it has brought together tens of millions of people.

So important is the telephone system that most of us who use it regularly cannot think of a life without it. Indeed had it not been for this media I perhaps would not have been your keynote speaker today. But just what are the social relations of this technology. Some of you may know that less that a third of the world's population have access to a telephone. Yes less than a third of the world's population.

You might be surprised to know that telephone service in most American cities by-passes the homes of some 36% of the people who live there. These are the so-called inner city poor. Walk through any of these areas and you can see banks of telephones outside local stores. These are the points of access for the poor. And this is in spite of national regulations that were intended to make telephone service a social good. Do you know that less than 10% of the world's population have access to any kind of computer?

Distinguished audience it is a small elite of the world who have access to and knowledge of how to use these technologies. It is this elite class of people, government policy makers, business executives and information scientists that are talking about a technology driven future. Most of the world's population have no voice in the discussion. The technology driven future is defined largely by distributed organizations and work, and electronic commerce. A key observation however, is that modern telephone and transportation systems, although value neutral and social goods, are contributing to the demise of urban life and precipitating the emergence of exploitative international labour practices.

Let me give a few illustrations: Before the telephone and cheap and effective transportation, people needed to be in proximity for commerce and social interaction. The center of activity in cities all over the world were the markets, the place where goods, services, stocks and futures contracts were traded.

Distinguished audience I would like to suggest to you that all the major cities of the world, London, New York, Paris, Berlin, Toronto, Johannesburg, Shanghai, that we all enjoy visiting had their genesis in the need for human proximity.

First cheap transportation reduced the need to live in proximity, and led to many American cities becoming temporary daytime housing for business activities, and deserted caverns at night. The second assault upon urban life was cheap telecommunications.

With cheap and instantaneous communication people no longer need to be in proximity, so there is no need of central meeting places. A poignant example of this is the demise of the London Stock Exchange. The LSE now has no physical location where people are in face to face contact with each other. It now exists as a virtual market place held together by information technologies.

A second example of the impact of teleworking is the international distribution of labour to lower wage markets. While this practice improves the profitability of many companies it can also have diverse effects of the cities that the work is moving from and workers who are recruited to work for foreign business owners. Here I can offer two examples.

I first started to critically reflect on the implications of teleworking in June 1988. I was Sciphol Airport in The Netherlands awaiting a flight to Hong Kong on my way to China for a summer teaching

engagement. There I was approached by a young Chinese man and offered a deal. And I quote: "You are going to Hong Kong, right?" Yes! I responded. He then said; "Do want a good quality hand made suit when you arrive at the airport for less than half you would pay in Amsterdam?"

I thought it was some type of joke, but as I inquired further he opened his brief case and showed me samples of top quality English wool. To get to the point of the story. This young Chinese man operated a business in which he would take the measurements of a client transmit them to the factory in Hong Kong, where they would make the suit while the client is in transit. At the Hong Kong airport some one would stand with placard with the client's name on it. The placard holder would then take client into a dressing room to check the fit, or make arrangements to do the fitting and finalize the transaction at the client's hotel.

Witnessing this type of business transaction got me thinking about telecommunications and the international distribution of labor, a subject I have since investigated in some detail. But we must move on to another example.

It is quite common today for many people in the US, Canada and other countries to engage in Home TV shopping. That is to look at various television channels dedicated to shopping, such as the Home Shopping Network (HSN). What many of these people do not know is how these transactions are executed and managed. Let me illustrate; The viewer calls the toll free number displayed on the television.

The order entry clerk answering the call may be located in Barbados, Jamaica, Bahamas or another cheap labour market in the Caribbean Islands. The order is entered into a computer system that automatically dispatches it to the warehouse in Mexico, and the credit card is charged. The warehouse workers in Mexico pack the order and load it onto the truck that leaves the next morning for the closest UPS or Federal Express depot across the border.

The Home Shopping Network owns no television networks, no factories or warehouses, employs no telephone clerks. It simple rents production space and television time, and, serves as a intermediary, an electronic marketing presence for some set of 'virtual companies.'

The 'virtual company' owns no factories or warehouses. It may simply be a toll free telephone number, an electronic bank account, and a mailbox in the Caiman Islands. The Manufacture of the products for sale may also be another virtual company that contracts out production to contractors operating in low wage labour markets. And still a third company is involved. The distribution company responsible for stock, packing and shipping the products. So what are some of the implications of these uses of technology to span time and geographic barriers?

For a start, no aspect of the business transaction described above requires social proximity. There is no store to walk into. Order entry, manufacturing, warehousing and shipping moves away from the location and proximity of the sale. In short the jobs go where ever labour is cheap, labour regulations are weak and workers can be easily exploited.

The jargon for these structural changes in business organization is dis-intermediation. The consequences however, have less sophisticated names like unemployment. Unemployment for a class of workers who live in the cities where these transactions originate and substandard wages for foreign workers with low perceived power.

The misery of low status workers in developing countries on the periphery of the centers of commerce and power is well documented. University graduates in Barbados and Jamaica who cannot find skilled jobs work 10 hours a day answering phones in electronic sweat shops for 400 U$ a month.

The Taiwanese engineer slaves 14 hours a day to design and build new computers for the ever increasing demand for new and more powerful computers set by Wall Street executives and the information elite. The story of exploitation of Asian workers making Nikes is well known.
And the quote a popular song, the beat goes on. More recent developments in teleworking or globally

networked production are, on-demand manufacturing of computer hardware, fashion wear and other products, software development, data entry, and so on.

But while these are visible and easily recognized examples of some of the implications of social relations of the new information technologies, what about the invisible implications. For example, what about those silent masses of people who are locked out of the electronic labour pool and electronic commerce.

Locked out because they have neither access to computers and telecommunications infrastructures nor the skills to work with these technologies. If we are thinking about a future driven by information technology, we need to ask ourselves: Whose future are we thinking about? What future are we envisioning?

Make no mistake, there is inequality in access to technology on a massive scale. Please remember that less than 33% of the world's population have simple telephone service. So what do we mean by a technology driven future?

One in which some people and some countries are effectively locked out from participation?

One in which some peoples and some countries serve as low cost labour pools for exploitation by the information technology elite countries?

One in which few benefit from the promise of technology and the rest are simply forgotten?

Such a future is very possible and likely if we fail to act. For while the cost of technology is dropping in rich countries, the earning power of people in poorer countries and the value of currencies they use are rapidly falling. Just eight months ago the price of 500U$ computer in Jakarta was 600,000 Rupiah, today it is about 9,000,000 Rupiah. Education in poorer countries is also falling behind.

The vast majority of the world's population has never touched a computer or telephone. As a critical theorist I ask the question again: What do we mean by a technology driven future? Whose future are we talking about?

Distinguished audience I would like to suggest to you that those who do not have access to the emerging global information technology infrastructure shall not have a technology driven future.

Theirs is to be a future of marginalization on the fringes of the post modern world order. And such a faith will not be limited to people of poor countries. We can envision a similar faith for the urban poor in major cities around the world.

That is lot of most people in the technology driven future, unless, we, the information technology elite, bring about a different future.

The responsibility then, is ours to define a technology driven world in which the benefits are maximized and the perils minimized. This is no easy task. It will require many of us to be interventionists, something which we are told by scientific orthodoxy is bad.

Those who want to exploit these technologies for their singular benefit want us to believe that we should simply produce value neutral technology and let the market dictate its uses. That is absolute nonsense. The market does not do a good job of generating social goods.

It is not a place of social responsibility, it is a place of self interest and profit motive. If we had let the market allocate education many of us would not have been educated.

Just as public schools, public universities, public hospitals, public transportation, public libraries and public museums are essential the health and wellbeing of a nation in the present, so too is a public information technology infrastructure.

A free and open global internet infrastructure is necessary for future social and economic development of the less develop countries. In the absence of such infrastructure the majority of the world's population will be locked out of social and economic interaction with the richer countries.

Distinguished audience I would also like to add that the market is not going to educate people about technology who cannot afford to by a computer and acquire telephone service. It is not going to provide access to the poor and indigent. Those are our responsibilities.

We must reach out to the technology illiterate and educate them about this new technology that will play such an important role in their lives whether the have access or not.

In the Department of Informatics at this university there is a fine example of such a vital activity, the UNI School. It educate thousands of ordinary South Africans ever year, most of them have never touched a computer before coming here.

We must also lobby the governments to allocate scarce resources to build the necessary infrastructure and enact legislation to ensure that as many as possible have a place in this technology driven future that we are talking about.

Distinguished audience, again I put to you my central thesis:

The technology driven future may be the best of times, or the worst of times.

It all depends upon us, the business magnates, the national governments, and that special class of technology elite, the computer, communication and information scientists living near the end of this century. We must be brave enough to be critical of our developments and speak out on how they are to be used.

Distinguished audience,
I thank you.

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Last edited by J.F. 18th June, 1998.